Appendix R

Examples of Quality Assurance/Quality Control Analysis Checklists

These example checklists were used for QA/QC review of whole sediment toxicity tests and sediment chemistry analysis.

QA/QC Analysis Checklist for
ACUTE AND CHRONIC WHOLE SEDIMENT TOXICITY TESTS
(10-day*C. tentans* and 10-day or 28-day *H. azteca*)

GRANT/IAG NUMBER: _____
PROJECT NAME: _____
REVIEWER: _____
DATE: _____

1. Did toxicity tests employ appropriate procedures? [ASTM: E1367, E1611, E1706, USEPA (2000)]

YES _____
NO _____ (UNACCEPTABLE)

2. Does sample storage time exceed the allowable storage time specified in the QAPP?

Allowable Storage Days Specified in QAPP _____
Number of Storage Days Prior to Testing _____

YES _____ (UNACCEPTABLE)
NO _____

3. Was the age for H. azteca organisms between 7- to 14-days at the start of the test with an age range less than 2-days?

YES _____
NO _____ (UNACCEPTABLE)

4A. Were all of the C. tentans organisms second- to third-stage larvae with at least 50% at the third instar?

YES _____
NO _____ (UNACCEPTABLE)

4B. How was the developmental stage of the C. tentans larvae measured?

Head Capsule Width _____ (See Table 10.2 of EPA/600/R-99/064, March 2000)
Length _____ (Should fall between 4 mm to 6 mm)
Weight _____ (Should fall between 0.08 to 0.23 mg/individual)

5. Do flow rates through the different test chambers differ by more than 10% at any particular time during the test?

YES _____ (UNACCEPTABLE)
NO _____

6. Did Dissolved Oxygen remain above 2.5 mg/L?

YES _____
NO _____ (Provide Explanation at end of Checklist)

7. Does daily mean Temperature remain at 23 ± 1°C?

YES _____
NO _____ (UNACCEPTABLE)

8. Does the instantaneous Temperature remain at fluctuate less then 23 ± 3°C?

YES _____
NO _____ (UNACCEPTABLE)

9. Do the Ranges of for Hardness, Alkalinity, pH, and Ammonia fluctuate more than 50%?

Ranges:

DO _____ Alk _____
pH _____ NH_3 _____

YES _____ (UNACCEPTABLE)
NO _____

10. Was the Ammonia concentration greater than 20 mg/L?

YES _____ (See EPA/600/R-99/064, March 2000 to determine if ammonia contributed to toxicity of H. azteca.)
NO _____

11. Was the Ammonia concentration greater than 82 mg/L?

YES _____ (See EPA/600/R-99/064, March 2000 to determine if ammonia contributed to toxicity of C. tentans)
NO _____

12. Was the Mean Control Survival in the *H. azteca* Control Sediments greater than or equal to 80%?

YES _____
NO _____ (UNACCEPTABLE)

13. Was the Mean Control Survival in the *C. tentans* Control Sediments greater than or equal to 70%?

YES _____
NO _____ (UNACCEPTABLE)

14. Was the mean weight per surviving C. tentans control organism greater than 0.48 mg (ash-free dry weight)?

YES _____
NO _____ (UNACCEPTABLE)

15. Was the overlying water renewed at a rate of 2 volumes per day?

YES _____
NO _____ (UNACCEPTABLE)

16. Please provide details for all of the "UNACCEPTABLE" responses marked above. Include details on the specific results that potentially may be affected by any QA/QC discrepancies, and recommendations regarding usability of data.

_____
_____
_____
_____
_____
_____

QA/QC Analysis Checklist for
SEDIMENT CHEMISTRY ANALYSIS

GRANT/IAG NUMBER: _____
PROJECT NAME: _____
REVIEWER: _____
DATE: _____

1. What sediment chemistry data has been collected (CHECK ALL THAT APPLY)?

   Total Metals _____ PCBs _____ pH _____ TOC _____
   Dioxins/Furans _____ PAHs _____ Pesticides _____ DO _____ AVS _____
   SEM Metals _____ Particle Size _____ Other _____

2. Were the target detection limits met for each parameter?

   YES _____
   NO _____ (UNACCEPTABLE)

3. Were the Method Blanks less than the established MDL for each parameter?

   YES _____
   NO _____ (UNACCEPTABLE)

4. Did the results of Field Duplicate Analysis vary by less than the % RPD specified in the QAPP?

   YES _____
   NO _____ (UNACCEPTABLE)

5. Did the results of the Field Replicates Analysis vary by less than the % RPD specified in the QAPP?

   YES _____
   NO _____ (UNACCEPTABLE)

6. Did the surrogate spike recoveries and MS/MSD recoveries meet the limits set forth in the QAPP?

   YES _____
   NO _____ (UNACCEPTABLE)

7. Did the initial calibration verification standards meet the requirements set forth in the QAPP?

   YES _____
   NO _____ (UNACCEPTABLE)

8. Were any level of contaminants detected above the MDL for the trip blanks and storage blanks?

   YES _____ (UNACCEPTABLE)
   NO _____

9. Did all required analysis take place within the required holding time protocols set forth in the QAPP?

YES _____
NO _____ (UNACCEPTABLE)

10. Did the laboratory duplicates vary by less than the % RPD specified in the QAPP?

YES _____
NO _____ (UNACCEPTABLE)

11. Are measured dry weight contaminant concentrations reported? (Note: Conversion from wet weight to dry weight concentration may occur ONLY if data on moisture or TOC are provided. Nominal concentrations are unacceptable.)

YES _____
NO _____ (UNACCEPTABLE)

12. Please provide details for all of the "UNACCEPTABLE" marked above. Include details on the specific analytes affected by any QA/QC discrepancies, and recommendations regarding usability of data.